WE CLAIM:

1. An isolated nucleic acid comprising at least 12 consecutive nucleotides of a nucleotide sequence selected from SEQ ID NO: 1, SEQ ID NO: 2, SEQ ID NO:3; SEQ ID NO: 4; SEQ ID NO: 5; SEQ ID NO: 6; SEQ ID NO: 7; SEQ ID NO: 8; SEQ ID NO: 9; SEQ ID NO: 10. SEQ ID NO: 11, SEQ ID NO: 12, SEQ ID NO: 13, SEQ ID NO: 14; SEQ ID NO: 15; SEQ ID NO: 16; SEQ ID NO: 17; SEQ ID NO: 18, SEQ ID NO: 19; and SEQ ID NO: 20.

2. The isolated nucleic acid of claim 1, wherein the nucleic acid comprises at least 15 consecutive nucleotides of the nucleotide sequence.

3. The isolated nucleic acid of Claim 1, wherein the nucleic acid comprises at least 18 consecutive nucleotides of the nucleotide sequence.

4. The isolated nucleic acid of claim 1, wherein the nucleic acid comprises a nucleotide sequence selected from SEQ ID NO: 1, complementary sequence of SEQ ID NO 1, SEQ ID NO: 2, complementary sequence of SEQ ID NO 2, SEQ ID NO: 3; complementary sequence of SEQ ID NO. 3, SEQ ID NO: 4, complementary sequence of SEQ ID NO: 4, SEQ ID NO: 5, complementary sequence of SEQ ID NO: 5, SEQ ID NO: 6, complementary sequence of SEQ ID NO. 6, SEQ ID NO: 7, complementary sequence of SEQ ID NO 7, SEQ ID NO: 8, complementary sequence of SEQ ID NO. 8, SEQ ID NO: 9; complementary sequence of SEQ ID NO: 9, SEQ ID NO: 10, complementary sequence of SEQ ID NO. 10, SEQ ID NO: 11, complementary sequence of SEQ ID NO. 11, SEQ ID NO: 12, complementary sequence of SEQ ID NO: 12, SEQ ID NO.:13, complementary sequence of SEQ ID NO. 13, SEQ ID NO:14, complementary sequence of SEQ ID NO: 14, SEQ ID NO: 15, complementary sequence of SEQ ID NO: 15 SEQ ID NO: 16, complementary sequence of SEQ ID NO: 16, SEQ

ID NO: 17, complementary sequence of SEQ ID NO: 17, SEQ ID NO:18, complementary sequence of SEQ ID NO: 18, SEQ ID NO: 19, complementary sequence of SEQ ID NO: 19 SEQ ID NO: 20 and the complementary sequence of SEQ ID NO: 20.

5. The nucleic acid of Claim 4 immobilized on a solid surface.

6. A pair of forward and reverse primers for amplification of VNTR located in DNA isolated from *Borrelia* species, said forward primer having SEQ ID NO. 1 and said reverse primer having SEQ ID NO. 2.

7. A pair of forward and reverse primers for amplification of VNTR located in DNA isolated from *Borrelia* species, said forward primer having SEQ ID NO. 3 and said reverse primer having SEQ ID NO. 4.

8. A pair of forward and reverse primers for amplification of VNTR located in DNA isolated from *Borrelia* species, said forward primer having SEQ ID NO. 5 and said reverse primer having SEQ ID NO. 6.

9. A pair of forward and reverse primers for amplification of VNTR in DNA isolated from *Borrelia* species, said forward primer having SEQ ID NO. 7 and said reverse primer having SEQ ID NO 8.

10. A pair of forward and reverse primers for amplification of VNTR in DNA isolated from *Borrelia* species, said forward primer having SEQ ID NO 9 and said reverse primer having SEQ ID NO. 10.

11. A pair of forward and reverse primers for amplification of VNTR in DNA isolated from *Borrelia* species, said forward primer having SEQ ID No 11 and said reverse primer having SEQ ID NO 12.

12. A pair of forward and reverse primers for amplification of VNTR in DNA isolated from *Borrelia* species, said forward primer having SEQ ID NO. 13 and said reverse primer having SEQ ID NO. 14.

13. A pair of forward and reverse primers for amplification of VNTR in DNA isolated from *Borrelia* species, said forward primer having SEQ ID NO.15 and said reverse primer having SEQ ID NO. V16.

14. A pair of forward and reverse primers for amplification of VNTR in DNA isolated from *Borrelia* species, said forward primer having SEQ ID NO. 17 and said reverse primer having SEQ ID NO. V18.

15. A pair of forward and reverse primers for amplification of VNTR in DNA isolated from *Borrelia* species, said forward primer having SEQ ID NO.19 and said reverse primer having SEQ ID NO 20.

16. A pair of forward and reverse primers of Claims 6-15 wherein a member of said pair comprises an observable marker.

17. The pair of Claim 16 wherein said marker is a fluorescent label or a radioactive group.

18. A pair of forward and reverse primers of Claims 6-17 as PCR primers in the detection of a *Borrelia* species.

19. A method for detecting a *Borrelia* species comprising the steps of:

i. obtaining a DNA sample from said species,

ii. amplifying a VNTR marker loci in said DNA with a primer pair of Claims 6-17; and

iii. detecting an amplification product that contains the VNTR sequence.

20. A kit for the detection of a *Borrelia* species comprising a primer pair of Claims 6-17.

21. The kit of Claim 20 comprising in addition nucleic acids, enzymes and buffers suitable for causing amplification of VNTR in DNA from said species in a PCR instrument.

22. A kit for detecting a *Borrelia* species comprising:

i. one or more primer pairs of Claim 6-15;

ii. nucleic acids having an observable marker;

iii. a transcriptase; and

iv. buffers and salts suitable for causing polymerization of VNTR in DNA from said *Borrelia* species in a PCR instrument.

23. The kit of Claim 22 for multiplexing DNA from a Borrelia species wherein said kit comprises mixtures of said primer pairs.

24. A method of sub-typing a *Borrelia* strain comprising the steps of:

i. obtaining DNA from said strain;

ii. amplifying said DNA with one or more primer pairs selected from Claim 6-17;

iii. detecting said amplified product;

iv. determining the diversity number of said amplified product; and

v. comparing said diversity number with the diversity number for a known strain of *Borrelia*.